

### CASE I PORTFOLIO VAR AND MORE

You have \$1 million invested in a portfolio that is made up of 5 stocks of your choosing. Your weights in each stock will be set in a way that makes your portfolio optimal (based on Sharpe ratio) with the added restriction that you will not invest less than 5% in each of the 5 shares.

You are to present the following information on your Portfolio:

- 1- Summary of the optimal weights in each security comprising the portfolio, the portfolio's expected return, standard deviation, skewness, kurtosis, Sharpe Ratio, semivariance and Sortino Ratio.
- 2- The 95% and 99% daily VaR of the portfolio assuming simple normality of returns and historical volatility.
- 3- The 95% and 99% daily VaR of the portfolio using the historical method with equal weightings along with the 95% confidence interval around each.
- 4- The 95% and 99% daily C-VaR of the portfolio using the historical method with equal weightings.
- 5- The 95% and 99% daily VaR of the portfolio using the historical method with exponential weightings (Lambda=0.997).
- 6- The 95% and 99% daily C-VaR of the portfolio using the historical method with exponential weightings (Lambda=0.997).
- 7- The 95% and 99% daily VaR of the portfolio using the historical bootstrap method.

### NOTES

1. Submit one Excel workbook – use as many sheets as you need but make sure to label them properly. Make sure the names of your group members are listed on the cover sheet.
2. Only ONE member of the group will upload the Excel file onto BB.
3. The response to each requirement should be clearly presented.
4. Use the returns from the last 500 days of data available on CRSP.
5. Use the 3-month t-bill rates as your proxy for the risk-free rate.

### GRADING RUBRIC

Dimension	Possible points	Sample Issues
<b>completeness/ accuracy / correctness</b>	16	<ul style="list-style-type: none"> <li>Are all requirements of the project satisfied?</li> <li>Are the calculations correct?</li> </ul>
<b>presentation/ clarity / annotations</b>	3	<ul style="list-style-type: none"> <li>Is there clarity in the presentation?</li> <li>Is the presentation streamlined and easy to follow?</li> <li>Is the presentation “business professional”?</li> </ul>
<b>wow factor (innovation and creativity)</b>	1	<ul style="list-style-type: none"> <li>Does this workbook represent creative or innovative applications in Excel?</li> <li>Did the preparer “go the extra mile?”</li> </ul>
<b>TOTAL</b>	<b>20</b>	